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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/723,543

11/26/2003

John R. Wootton

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09/30/2008

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EXAMINER

HANDAL, KAITI V

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/723,543	<b>Applicant(s)</b> WOOTTON ET AL.	
	<b>Examiner</b> KAITY V. HANDAL	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/18/2008 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 18-35 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims, the specification and the figures do not contain any disclosure in support of the limitation related to having “...at least one pre-heater in thermal communication with said water feed and said diesel fuel...etc”. This statement implies that one pre-heater or maybe more is disclosed to perform as claimed. The disclosure and the figures support that at least one pre-heater

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is needed for each of the water feed and the fuel feed separately. For prosecution purposes, Examiner is proceeding based on the latter.

4. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not contain a disclosure describing the limitation relating to having a means for creating a mixture of the preheated diesel fuel, the preheated water and air. Furthermore, the disclosure does not suggest anywhere mixing the three feeds of fuel, water, and air prior to entering the SCW reactor.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 18-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 18-35 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural

connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: between that of the SCW reactor and the WGS reactor.

### ***Drawings***

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means for creating a mixture of the preheated diesel fuel, the preheated water, and air" of claim 26, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 18-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hokari et al. (US 2003/0168381) in view of Wright et al. (USP 5,141,823).

Regarding claims 18-35, Hokari et al. discloses a system comprising hydrocarbon and water feeds; a supercritical water (SCW) reactor; further including an oxygen feed into the SCW reactor; further comprising a sensor and control system for monitoring at least one of said syntheses gas and said output gas and adjusting said feeds based on said sensing (see for example [0005]-[0018] and [0031]).

While the reference teaches that the produced combustible gas can be used for energy generation, it does not disclose another means of using said combustible gas for energy generation, namely using it in a fuel cell. Since to use combustible gas resulting from hydrocarbon reforming in a fuel cell was well known in the art at the time of the invention, as evidenced by Wright et al. (see for example abstract), it would have been obvious to one having ordinary skill in the art at the time of the invention to use said generated combustible gas of Hokari et al. in the fuel cell of

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Wright et al., as doing so would have amount to nothing more than to use a known material for its intended use, in a known environment to accomplish an entirely expected result. Further examiner notes that an apparatus is not patentable where it is an obvious combination of two known elements, wherein each element lends to end products the desirable properties that each is known to produce when used alone and there exists no evidence of co-action between the elements that produces unexpected results. See *In re Fortess and Schoeneberg*, 152 USPQ 13 (CCPA 1966).

Wright additionally discloses that to use combustible gas in a fuel cell, the system needs to include a water-gas shift reactor (C5/L62-68 and C7/L50-65) and a capturing system to temporarily store that hydrogen gas before supplying it to the fuel cell (C 1/L54-C2/L5).

Hokari suggests pre-heating water (page 3, paragraph [0037]), which makes it obvious if not inherent that a preheater/(source of heat) to heat the water prior to entering the reactor is disclosed therein. Hokari fails to teach the presence of at least one pre-heater in thermal communication with said fuel feed and configured to preheat fuel to a predetermined temperature equal to or greater than the critical temperature of water. Wright teaches an apparatus comprising fuel and water feed-lines (as illustrated in fig. 4), wherein the mixture (24) is preheated in heat-exchanger (29); wherein said heat-exchanger is positioned upstream of reactor (21) in order to provide the thermal requirements for the reaction (col. 4, lines 10-23).

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It would have been obvious to one having ordinary skill in the art at the time of the invention to provide at least one preheater to pre-heat the fuel and water streams entering the reactor in Hokari's apparatus, as taught by Wright, in order to provide the thermal requirements for the reaction; and therefore, one of ordinary skill in the art would have pre-heated the inlet streams of water and fuel, using at least one pre-heater, in Hokari to a temperature that is as close as possible to that of the reaction temperature as desired.

Regarding limitations recited in claims 18-35 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device ( as described by including claim limitations in process language versus structural limitations) nor material or article worked upon (diesel fuel) further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

### ***Response to Arguments***

10. Applicant's arguments filed 6/20/2208 have been fully considered but they are not persuasive.

Applicant argues on page 7, line 22 - page 8, lines 1-3 the following:



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“...no where does Hokari disclose or suggest having at least one preheater to heat both the water and the heavy oil to a temperature equal to or greater than the predetermined temperature of the critical temperature of water.”

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., at least one preheater to heat both the water and the heavy oil) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, for purposes moving prosecution along further, as applicant conceded in the remarks on page 7-lines 20 to 22, Hokari suggests pre-heating water (page 3, paragraph [0037]), which makes it obvious if not inherent that a preheater/(source of heat or a heat exchanger) to heat the water prior to entering the reactor is disclosed therein. However, it is true that Hokari fails to teach the presence of at least one pre-heater in thermal communication with said fuel feed and configured to preheat fuel to a predetermined temperature equal to or greater than the critical temperature of water. Wright teaches an apparatus comprising fuel and water feed-lines (as illustrated in fig. 4), wherein the mixture (24) is preheated in heat-exchanger (29); wherein said heat-exchanger is positioned upstream of a reactor (21) in order to provide the thermal requirements for the reaction (col. 4, lines 10-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to

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provide at least one preheater to pre-heat the fuel and water streams entering the reactor in Hokari's apparatus, as taught by Wright, in order to provide the thermal requirements for the reaction; and therefore, one of ordinary skill in the art would have pre-heated the inlet streams of water and fuel, using a pre-heater, in Hokari to a temperature that is as close as possible to that of the reaction temperature in the reactor as desired.

Applicant argues that Hokari fails to suggest a reactor that generates synthesis gas comprising a mixture of hydrogen and carbon monoxide as claimed. Examiner respectfully explains that limitations recited in claims 18-35 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device ( as described by including claim limitations in process language versus structural limitations) nor material or article worked upon (diesel fuel) further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAITY V. HANDAL whose telephone number is (571)272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. V. H./  
Examiner, Art Unit 1795

9/7/2008

/Alexa D. Neckel/  
Supervisory Patent Examiner, Art Unit 1795

**Search Notes**

Application/Control No.

10/723,543

Examiner

KAITY V. HANDAL

Applicant(s)/Patent under  
Reexamination

WOOTTON ET AL.

Art Unit

1795

**SEARCHED**

Class	Subclass	Date	Examiner
Updated	Search	9/9/2008	KH

**INTERFERENCE SEARCHED**

Class	Subclass	Date	Examiner

**SEARCH NOTES  
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Updated Key Word Search in EAST	9/9/2008	KH
Updated Inventorship Search	9/9/2008	KH